MARKETING IA

The main objective is to study, through purchasing, a business and to optimise sales under the umbrella of the product point of view.

The idea is to make it as automatic as possible and to apply the advantages in a market go like hell.

With this objective in mind, thanks to the data provided by a spa in Granada, which is a client of ours, previously (very) trimmed and anonymised. We want our clients to get the most out of their customer data.

Data extraction
There is a private api with bearer token with a get request to download a json and transform it to csv.

This project consists of 4 notebooks,
Product exploration and analysis
Market insights
Predicting sales and revenue
Optimal price and demand elasticity based on previous prices.

Product exploration and analytics

We explore, the number of sales over 4 years 2017-2022, product trend, products sold, geographic areas of buyers, gender, discounts applied, sales channel, shift time and day of the week.

Market Insigths

We use the pytrends library to explore the possibilities of market trends.

We run the keywords for 1 year and 3 months, and create a keyword cloud by country.

and SPA related searches over one year.

Predicting revenue and sales
We analyse the channels, and then we do the one hot encoder and divide them by years.

We show the sales, and apply the averages on the discounts.
We analyse the correlation between variables one hot encoded, obviously there is an inverse correlation in the columns that are related to one hot encoding for example discount 20 and discount 0, as it is logical it is not going to have both discounts.

We use Facebook Prophet to do the prediction based on time series. it works quite well.

Optimal price and elastic demand based on previous prices.

We apply the value minus the average of the values and divide it by the subtraction of the maximum and the minimum, so we do the calculation over time.

We apply the OLS to do the regression, the system works quite well but we need to have a large history with price variations per product.